Originals

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Construction, validity and reliability, of the screening scale «FASCT» for attention deficit hyperactivity disorder in adults. (Self-reported and observer versions)

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Introduction. Research about the reliability of retrospective self-report rating scales for ADHD in adults has been limited.

Method. A self-report scale named «FASCT» was created with two versions: self-reported and observer. The self-reported version was applied to 393 subjects and the observer version to 377. An exploratory and confirmatory factorial analysis was made in order to obtain the final adaptation of both versions. Finally they were applied to 205 subjects and 105 of their first degree relatives.

Results. Cronbach's alpha for the self-reported version was 0.84 and 0.87 for the observer version. The total score that had the best balance between sensitivity and 1-specificity was 23 points for each version of the «FASCT». Correlation between both versions was 0.88. The correlation coefficient between the Wender-UTAH scale and self-reported version was 0.71 and for the observer version was 0.66. Agreement degree between dichotomized total score and the diagnosis made by structured interview was 0.82, for the self-reported version and 0.88 for the observer version. Sensitivity and specificity for the self-reported version were 80.36 and 97.9, respectively. Sensitivity and specificity values for the observer version were 95.4 and 96.3 respectively.

Conclusions. Both versions of the «FASCT» scale were shown to be valid and reliable for adult ADHD screening.

Key words:
Adhd. Adults. Validity. Reliability. «FASCT» Scale.

Construcción, validez y fiabilidad de la escala de tamizaje «FASCT» para el trastorno por déficit de atención en adultos (versión autoaplicada y del observador)

Introducción. La fiabilidad de las escalas autoaplicadas retrospectivamente para tamizar a adultos con trastorno por déficit de atención con hiperactividad (TDAH) se ha investigado de manera limitada.

Método. Se construyó un instrumento denominado «FASCT», el cual consta de dos versiones: autoaplicada y del observador. Se aplicó la primera versión a un total de 393 personas y la versión del observador a 377. Se realizó un análisis factorial exploratorio y confirmatorio para obtener las versiones finales del instrumento. Finalmente se aplicó la versión autoaplicada junto con una entrevista estructurada a 205 sujetos. La versión del observador fue aplicada a 105 de sus familiares de primer grado.

Resultados. La versión autoaplicada obtuvo un alfa de Cronbach de 0,84 y la versión del observador de 0,87. El punto de corte con mejor balance entre sensibilidad y 1-especificidad fue de 23 puntos para cada versión. El coeficiente de correlación entre ambas versiones fue de 0,88. El coeficiente de correlación entre la escala de Wender-UTHA y la versión autoaplicada de la «FASCT» fue de 0,71 y para la versión del observador fue de 0,66. El grado de acuerdo entre la calificación dicotomizada de la «FASCT» con el diagnóstico de la entrevista estructurada fue de 0,82 para la versión autoaplicada y de 0,88 para la versión del observador. Asimismo se obtuvieron los siguientes índices para la versión autoaplicada: sensibilidad, 80,36; especificidad, 97,9. Los valores para la versión del observador fueron: 95,4 y 96,3, respectivamente.

Conclusiones. Ambas versiones de la escala «FASCT» demostraron ser válidas y confiables para el tamizaje del TDAH en adultos.

Palabras clave:
TDAH. Adultos. Validez. Fiabilidad. Escala «FASCT».

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INTRODUCTION

Adult attention deficit disorder (ADHD) was originally conceived as a specific disorder of childhood. However, ADHD in the adult is becoming increasing more recognized by clinicians and investigators. It is estimated the ADHD in the general population affects between two and nine percent of school aged children and approximately five per-

cent of adults[1]. Some authors have questioned the persistence of ADHD symptoms in adulthood[2], arguing that there is symptom decrease over time. For example, Hill et al.[3] published a study that included the analysis of nine prospective studies in children with ADHD who were followed-up for a period varying between 4 to 16 years. They found that ADHD symptoms decline by 50% every 5 years. However, different long term prospective studies conducted in young adults diagnosed of ADHD in childhood have shown the persistence of the complete or partial syndrome in percentages that go from 4.5% to 66%, depending on the diagnostic criteria used and the study published[4-9]. In 1993, Biederman et al.[10] made a review of the literature on psychiatry and psychology of the empiric studies published on ADHD initiating in childhood. These studies were examined to know the evidence on descriptive, predictive and concurrent validity of ADHD in adults. The literature shows that this disease may be diagnosed reliably in the adult and that the diagnosis has a predictive value of complications and response to treatment. Furthermore, there is overwhelming evidence of genetic transmission, specific response to treatment, carrying out the neuropsychological tests and abnormalities in brain structure and function of individuals suffering ADHD in adult and adolescent age[11-15].

The evaluation and diagnosis of ADHD in adults are commonly done according to the criteria of the Diagnostic and Statistical Manual, fourth edition, revised text (DSM-IV TR), published by the American Psychiatric Association (APA)[16]. This manual considers the same diagnostic criteria of ADHD for adults as for children or adolescents and manages a category called «partial remission» for those adult patients who have ADHD symptoms, but who do not completely satisfy the criteria required to make the diagnosis. As far as we know, the MINI Plus Structured Interview (MINI Mental International Neuropsychiatric Interview; Sheehan et al., 2000) is the only structured interview in Spanish that contemplates the diagnosis of ADHD in adults according to the international disease classification criteria, tenth edition (ICD-10), published by the World Health Organization (WHO) and the DSM IV-TR. On the other hand, there are different scales that have been developed to evaluate the disorder in adults, as is the case of the Connor's adult ADHD rating scale[17], Brown-ADD scale[18], DuPaul scale[19] and Wender-UTAH scale[20,21]. Although some of them offer a version in Spanish, not all have this characteristic. Some of them are not easily accessible. Others are expensive and have a complicated scoring system besides being relatively long. Others do not have a specific version for an external observer. Thus, it would be desirable to create a screening scale that is easy to apply and score, whose cost is low, that is short in its application and scoring, that is easily available to be used by any mental health professional, that has a version specifically designed for the observer and whose psychometric properties are known. Even though there must be ADHD symptoms in childhood to make the diagnosis of ADHD in the adult, the investigation on reliability of the retrospective self-applied reports in adults has been limited[22]. For these reasons, the objective of the following study was to construct and know the psychometric properties of an instrument specifically designed to identify ADHD symptoms in adults, both in its self-reported and observer version.

MATERIAL AND METHODS

An extensive review of the international references was made in the Pub-Med® database with the words: «ADHD» and «adults» and «rating scales», from the year 1980-2006. Hence, articles that included clinical descriptions of adult patients who suffer ADHD and any study published that is about etiopathogeny, phenomenology, evolution, measurement scales of ADHD severity in adults and its treatment were obtained.

Other sources such as specialized books on ADHD, the DSM IV-TR and ICD-10 were consulted. Based on the information obtained from all these sources and the suggestions contributed by the different experts in the area, a 50 item scale in two versions was made, one self-reported and another for an external observer. The scale was called «FASCT» which represents the letters of the authors' last names. Each one of the versions has five response options: «Never», «Rarely», «Sometimes», «Most of the time» and «Always».

Each option was assigned a value of 0, 1, 2, 3 and 4 points respectively. The instrument instructions were clearly explained so that the evaluated subject and observer could score the presence and severity of each symptom during their lifetime. Subsequently, the preliminary version of the scale was sent to two independent experts in the Spanish language to correct writing, spelling, grammar and syntaxes of the questions. Once corrected, a pilot study was made. It consisted in the application of both scales to 40 subjects in order to measure response time and know the clarity of the instructions, of the questions and the response form. The comments of these subjects were collected and the corrections suggested were made. Then, in a first application phase, the 50 item self-reported version of the questionnaire was applied in subjects who came from the out-patient clinic of a mental health unit, from the out-patient consultation of a general hospital and from the general community. It was applied to a total of 393 subjects and the observer version was applied to 377 individuals, the latter being asked to score a family member they had known since childhood. Inclusion criteria were: subjects from both male and female gender, aged 18 to 55 years, who voluntarily accepted to participate in the study and who knew how to read and write. Exclusion criteria were: all those subjects who did not accept to participate in the study, those with clinical suspicion of organic brain damage, patients having a confusional state (delusion), with suspicion of demential syndrome, who were in a state of intoxication or suppression due to substances, patients with suspicion of mental retardation, with a history of psychosis

such as schizophrenia, schizoaffective or schizophreniform disorder, subjects with hearing or vision difficulties and patients with a serious medical condition when the scales were applied. Exploratory and confirmatory factorial analysis was done, and shorter versions were obtained for each one of the two versions: 12 item self-reported and 13 item observer.

In a second application phase, the 12 item self-reported version was applied to a population of 205 adult subjects accompanied by a first degree relative (mother, father or older brother), who had lived with the subject evaluated for at least the first 15 years of his/her life. In the presence of his/her relative(s), each subject underwent the structured MINI Plus interview in its Spanish version. At all times, the interviewer was blind to the results of the 12 item self-report scale. A similar procedure was done with the 13 item observer version in 105 subjects. In this second phase, the subjects came from the out-patient clinic of a mental health unit (psychiatric clinical population) and from the community in general (non-clinical population) and the inclusion and exclusion criteria were the same as those used in the first phase of the study.

The information obtained was used to construct the ROC curve (receiver operating characteristic curve) in order to know the total scores that offered the best balance between sensitivity and specificity. For both versions, it was found that this score was 23 points. Patients with probable ADHD were considered to be all those who had a grade equal to or greater than 23 points and this was contrasted with the result of the structured MINI Plus interview. The degree of agreement (Kappa index), sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) were calculated.

Additionally, the Wender-Utah scales were applied to all the patients to calculate the convergent validity with the «FASCT» scale. In order to rule out other psychiatric diseases that could be confused with ADHD in the adult, the following scales in addition to the MINI interview were applied: Young mania rating scale (YMRS)[23], AUDIT scale[24,25] (the alcohol use disorder and qualification) to screen alcohol problems, the list of general psychopathology symptoms SCL-90[26] (90-item Symptom Check List) and the Hamilton depression and anxiety rating scales (HDRS, HARS)[27,28].

The self-reported version was applied to a subgroup of subjects from the randomly chosen clinical and non-clinical population at two different times, with one month of difference between both applications, to know the temporal reliability of the instrument.

Statistical analysis

Calculation of the sample size: sensitivity, specificity, PPV and NPV were calculated, taking into account a 5 % prevalence of ADHD in adults in the general population. Calcula-

tion of the sample size provided a value of at least 95 subjects with a 10 % margin of error, 95% confidence interval and 0.05 alpha value.

The χ^2 test was used to know interdependence between the dichotomized score of the 12 item self-reported version scale and the result of the structured interview (MINI Plus). This same test was also used to analyze interdependence between the ADHD diagnosis given by the structured interview and the population origin (clinical psychiatric population and non-clinical population). Calculation of sensitivity and specificity, as well as the positive predictive value and negative predictive value was conducted with the standard formulas for each purpose, according to Argimon (2002)[29]. The Mann-Whitney «U» test was used to contrast the total scores of both versions of the «FASCT» scale between female and male gender subjects. Pearson's correlation coefficient was used to know the relationship between the total scores of both versions of the «FASCT» scales and each one of the scales applied, such as: the Wender UTAH, HDRS, HARS, YMS, SCL 90 and AUDIT scales. Intraclass correlation coefficient was calculated to verify the temporal reliability of the instrument for the self-reported version.

Multivariate analysis

An exploratory factorial analysis was conducted with the 50 item self-reported versions in 393 subjects and with the observer version with 377 subjects. Normality tests indicated the normal nature of the total score distribution of the 50 items. Prior to the factorial analysis, Bartlett sphericity test was conducted and provided the following results: for the self-reported version: χ^2: 7840,37; degrees of freedom (gl): 1,225; p = 0.000. The results of Bartlett sphericity test for the observer version were: χ^2: 9376.78; gl: 1255; p = 0.000. Once this result was obtained, the exploratory factorial analysis was done by the method of extraction of principal components, with orthogonal Varimax rotation and Kaiser normalization.

Entry criterion for factorial load of each item of the factorial analysis was fixed as equal to or greater than 0.5.

Confirmatory factorial analysis

By means of the AMOS® (Analysis of Moment Structures) statistical program, three steps were taken to confirm the results of the exploratory factorial analysis and thus obtain the factors and their respective questions that would predict the total score of each one of the scale versions in a path analysis with a latent variable not observed called ADHD. All the analysis was done independently for each one of the two versions. For the self-reported version, the exploratory factorial analysis provided 6 factors and for the observer version 4. In the first step, a congeneric analysis was done to look for the questions with factorial loads above 0.70 and eliminate those below this value to know the

questions that entered into the structural analysis of covariance. In the second step, factors with loads less than 0.50 were eliminated from the «FASCT» variable. Finally, in the third step, the fact that both the factors obtained from the two previous steps predicted the total score of each one of the instrument versions was investigated by a latent, non-observed variable called ADHD. That is how the questions and final factors making up the instrument were obtained: three factors and twelve questions for the self-reported version and four factors with 13 questions for the observer version. The study was presented to and approved by the Ethics Committee of the Hospital General de Querétaro, México.

RESULTS

The sociodemographic results of the 393 subjects and the 377 subjects who participated in the exploratory and confirmatory factorial analysis were the following: for the 393 subjects who were applied the self-report scale, the average age was 26.86 years ($\pm$ 10.12); 63.85 % were women and had an average of 15.53 ($\pm$ 3.42) of years studied. For the 377 subjects who were applied the observer version, the average age was 28.36 ($\pm$ 11.64) years, 57.1 % were women and the average of years studied was 15.71 ($\pm$ 3.24).

For the 205 subjects who participated in the second phase of the application of the self-reported version, 65.37% were women and 34.63 men; 53.17% were patients seen in the community mental health care site due to any psychiatric disease other than those mentioned in the inclusion criteria and 46.83 % were a non-clinical population from the community. The patients who participated in the application of the observer version were a total of 105; 35.24 % were men and 64.76 % women; 49.52 % were patients seen in the community mental health care site due to any psychiatric disease other than those mentioned in the inclusion criteria and 50.48 % came from the community.

Table 1	Prevalences on ADHD by gender according to population type and to the results of the structured MINI Plus interview and self-report scale			
	Clinical psychiatric population		Non-clinical population	
	MINI Plus	Self-reported «FASCT» ($\geq$ 23 points)	MINI Plus	Self-reported «FASCT» ($\geq$ a 23 points)
Woman	21.6 %	22.5 %	7.1 %	8.1 %
Man	8.5 %	7.5 %	4.1 %	5.1 %

Prevalence in the clinical psychiatric population, according to MINI Plus, was 16.80 % and in the non-clinical population 7.4 % (χ^2: 8.68 %; gl: 1; p = 0.032). The prevalences corresponding to the 12 item self-report scale, using a cut-off score of $\geq$ 23 points, were 18.1 % in the clinical psychiatric population and 7.8 % (χ^2: 14.35; gl: 1; p = 0.000) in the non-clinical population.

Table 1 shows prevalences by gender according to type of population and to the results of the MINI Plus interview and self-report scale. Table 2 shows the results of the sociodemographic and clinimetric variables of the subjects who participated in the second phase of the application according to the two «FASCT» versions.

Calculation of internal consistency

Calculation of Cronbach's alpha was used for the analysis of internal consistency. The value for the self-report version was 0.84 and for the observer version 0.87.

Table 2	Sociodemographic and clinimetric numeric variables of the subjects who participated in the second phase of the application of the «FASCT» scales in their self-reported and observer versions								
	Age (years)	Schooling (years)	«FASCT» scales	Wender–UTHA	HDRS	HARS	YMRS	AUDIT	SCL-90
Self-reported									
Mean (SD)	28.75	13.73	17.9	42.54	10.73	15.82	2.70	3.11	85.36
(n = 205)	(10.4)	(4.96)	(9.31)	(31.21)	(11.59)	(11.59)	(3.04)	(4.8)	(68.15)
Observer									
Mean (SD)	27.85	13.33	17.30	46.70	10.0	14.56	2.7	3.25	79.67
(n = 105)	(11.1)	(5.14)	(10.03)	(32.30)	(7.67)	(10.61)	(2.6)	(4.93)	(67.40)

«FASCT»: scale for screening of ADHD in adults. HDRS: Hamilton depression rating scale. HARS: Hamilton Anxiety Rating Scale. YMRS: Young mania rating scale. AUDIT: alcohol use disorder and qualification. SCL-90: list of 90 symptoms. SD: standard deviation.

Table 3	Factors and example of a question corresponding to this factor for the self-reported version of the «FASCT» scale

Factor 1	Factor 2	Factor 3
Organization and memory	Hiperactivity	Onset in childhood
Example: Is it difficult for you to be orderly in your work site or room?	Example: Do you need to perform many activities to be able to then be still?	Example: Did you have any of these traits in your childhood: distraction, impulsiveness, excess activity or lack of organization?

Results of the exploratory and confirmatory factorial analysis

For the self-reported version, in an initial version of 50 items, the exploratory factorial analysis provided five factors that explained 42 % of the variance. Subsequently, the confirmatory factorial analysis provided three factors that were called: «organization and memory», «hyperactivity» and «onset in childhood». These three factors explained 35.1 % of the variance. For the observer version, the exploratory factorial analysis initially provided four factors that explained 44.2 % of the variance.

The confirmatory factorial analysis provided four factors called: «organization and memory», «hyperactivity», «low tolerance to frustration» and «alcohol consumption/ legal problems». Tables 2 and 3 show the final result of the structural analysis of covariance with each factor and an example of a question of each factor. It does not show the congeneric analysis of each factor or the structural analysis of covariance for space reasons. Congeneric analysis and structural analysis of covariance with its diagnosis and evaluation measurements indicated that, for the self-reported version, the model adjusted with an χ^2 ratio related to degree of freedom (χ^2/gl) = 2.04. The adjusted goodness of fit index (AGFI) was 97 % and the root mean square error of approximation (RMSEA) was 0.052 (90 %

CI: 0.00-0.12). For the observer version, the respective values were: χ^2/gl: 0.67; AGFI: 0.98; RMSEA: 0.000 (90% CI: 0.000-0.05).

Construction and results of ROC curves

Figure 1 shows the ROC curve for the self-reported and observer versions of the «FASCT» scale. For the former, the area under the curve was 0.967; p = 0.000 (95% CI: 0.946-0.988), and for the latter, the area under the curve was 0.979; p = 0.000 (95% CI: 0.948-1.00). Table 5 shows the ROC curve coordinates and the cut-offs that showed a greater balance between sensitivity and specificity for each one of the «FASCT» version. Table 6 shows the clinimetric parameters obtained for each one of the versions and table 7 the correlation coefficients between both «FASCT» versions and all the scales applied.

The intraclass correlation coefficient between the first and second application of the self-reported version was 0.570 (95% CI: 0.157-0.781); p = 0.007.

No statistically significant differences were observed in the total score of both versions of «FASCT» between male and female gender subjects. The total scores of both «FASCT» versions did not correlate with the total of years

Table 4	Factors and an example of a question corresponding to this factor for the observer version of the «FASCT» scale

Factor 1	Factor 2	Factor 3	Factor 4
Organization and memory	Hiperactivity	Low tolerance to frustration	Alcohol consumption and legal problems
Example: Have you noticed that he/she has any problems to live an organized life?	Example: 3. Do you consider that he/she needs to be in a job that requires much movement instead of one where he/she remains still?	Example: When things don't go as planned, does he/she get angry?	Examples: Has alcohol intake caused him/her health, work, family or legal problems? Do you know if he/she has been involved in legal problems?
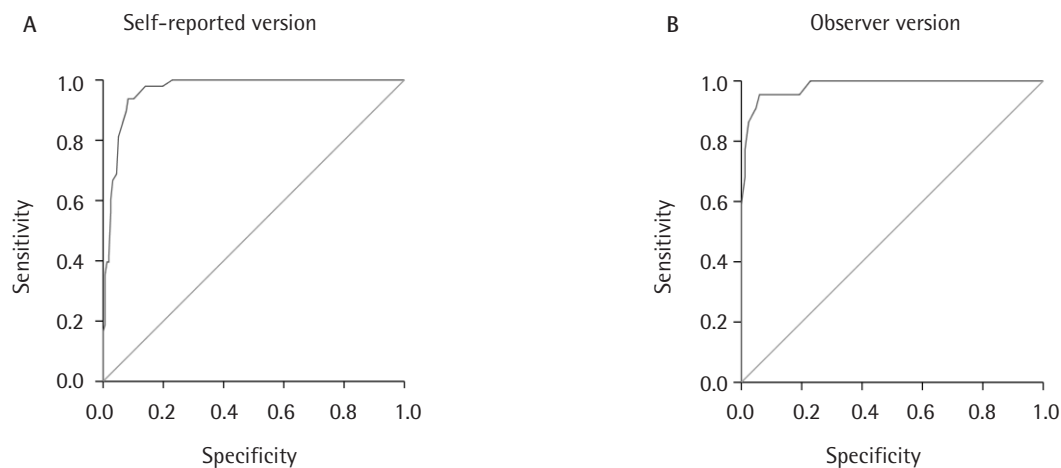
Figure 1 | *ROC curve for the self-reported **(A)** and observer **(B)** versions of the «FASCT» scale for screening of ADHD in adults.*

studied. Patients with ADHD had higher and statistically significant scores on the anxiety, depression, general psychopathology and alcohol consumption scales than the control subjects.

DISCUSSION

The results of the present study show that the «FASCT» instrument in its two versions is a reliable and valid instrument to screen ADHD in adults. It is a scale that is easy to apply and score, as well as short, all of which make its use rapid and practical. It is not a diagnostic scale. It is a scale that identifies the probable presence and severity of ADHD symptoms and that captures the characteristic manifestations of this disease in the adult. This is not a translation of a scale from another language. It has been a Spanish scale since its initiation. Given its temporal stability, it may be used for the follow-up of a patient during treatment. We find that cognitive problems (for example, memory and or-

ganization) from the patient's point of view are the most frequently reported in comparison with hyperactivity and impulsiveness problems, as demonstrated by the exploratory and confirmatory factorial analysis. The syndrome of low tolerance to frustration is also an important characteristic of ADHD in the adult, both from the patient's point of view as well as from that of the observer. On the other hand, we found that patients are reluctant to mention their alcohol problems and legal ones in a self-report scale . On the contrary, the observers, in this case, first degree relatives, are capable of providing this information. Thus, and as clearly indicated in the DSM-IV-TR, the diagnosis of ADHD in the adult should be done with the complementary information

Table 5	Coordinates of roc curve and cut-offs that show a better balance between sensitivity and specificity for each one of the «FASCT» versions			
	Self-reported		Observer version	
Cutt-off	Sensibitivity	1-Specificity	Sensibitivity	1-Specificity
22	0.938	0.083	0.955	0.036
23	0.986	0.076	0.090	0.024
24	0.813	0.051	0.864	0.012

Table 6	Calculation of clinimetric parameters of both versions of the «FASCT» scale	
	Self-reported version	Observer version**
Sensitivity	80.36	95.45
Specificity	97.99	96.39
Positive predictive value	93.75	87.50
Negative predictive value	92.99	98.77
Kappa index (with the MINI Plus diagnosis)	$\kappa = 0.82$; $p = 0.0000$	$\kappa = 0.88$; $p = 0.000$

* Contrast in a 2×2 table between the results of MINI Plus and of the score of the dichotomized self-reported version (score $\geq$ to 23 points, «if ADHD»; score < than 23 points: «no ADHD». χ^2: 139.314; gl: 1; p = 0.000. Likelihood ratio: 138.28; gl=1; p = 0.000). ** Contrast in a 2×2 table between the MINI Plus result and the result of the score of the dichotomized observer version (score $\geq$ to 23 points, «if ADHD»; score < to 23 points, «no ADHD». χ^2: 83.188; gl = 1; p = 0.000. Likelihood ratio: 78.937; gl = 1; p = 0.000).

Table 7	Correlation coefficients between both versions of the «FASCT» scale and different clinimetric instruments applied		
	«FASCT» self-reported version	«FASCT» observer version	Wender-UTAH
YMRS	0.522	0.574	0.515
HDRS	0.438	0.486	0.401
HARS	0.616	0.601	0.504
SCL-90	0.577	0.607	0.609
AUDIT	0.238	0.180	0.112
Wender-Utah	0.710	0.666	1.00

«FASCT»: scale for screening of ADHD in adults. YMRS: young mania rating scale. HDRS: Hamilton depression rating scale. HARS: Hamilton Anxiety Rating Scale. SCL-90: list of 90 symptoms. AUDIT: alcohol use disorder and qualification. Wender-Utah: scale to measure ADHD retrospectively.

of a family member or external observer. In addition, the correlation coefficients with the Wender-Utah scale, which was used to conduct the concurrent reliability as it is a validated scale in the Spanish language, ranged from 0.666 to 0.710 for each version, respectively[21]. Even though the correlation coefficients are not low, it is important to mention that the questions on the Wender-Utah scale refer to when the patient was a child more than in the present, on the contrary to the «FASCT» scale, which asks both the patient and his/her observer on the presence of ADHD symptoms during childhood and at present. This was logical, given the natural history of the disease, since the ADHD symptoms change as the subject goes from childhood to adult age[9].

This present study found a higher ADHD prevalence in women, measured both through the MINI Plus and the «FASCT» scale than in men. This can be interpreted as follows: even though the sample was made up of both clinical and non-clinical population, the percentage of women participants in the first population was greater than the percentage of male subject. An alternative hypothesis is that, as the subjects become older, the proportion of ADHD symptoms change between men and women, on the contrary to that which occurs in children. This finding must be studied in future investigations that are specifically designed to verify it.

On the other hand, the results of this study show that adult patients who suffer ADHD have high degrees of psychopathology, especially of anxiety and affective disorders. These findings are similar to those reported by Weiss et al. in 1986 and Biederman et al. in 1995[8,12].

It is being debated whether the memory bias may alter reliability to evaluate retrospectively the presence of ADHD in adults. Mannuzza et al. in 2002[22] estimated the positive predictive value of a self-report scale in a sample of known ADHD subjects and to a control group. They found that the

positive predictive value of the self-report scale was 27%. This increased when the prevalence was higher. The authors made two conclusions: the diagnosis of ADHD based on self-report scales is invalid in epidemiological samples and in populations in the first level of care where prevalence is low and that the participation of an observer is necessary to increase the positive predictive value. In this present study, we found a prevalence of 23.41% of ADHD in a sample made up of both patients from the community (non-clinical population) as well as patients who came to the psychiatric clinic and the positive predictive value obtained for the self-reported version was 93.75%. Our results agree with those of Mannuzza et al. (2002), who indicated that when prevalence increases, the positive predictive value of a self-report scale for ADHD increases. On the other hand, we found that the report of an observer is necessary for the correct evaluation of a possible case of ADHD in an adult.

In 2000, Murphy et al. performed two studies where they evaluated the presence of ADHD symptoms during childhood. They applied a self-report questionnaire to both the subject evaluated and to a family member and found a total correlation coefficient for the ADHD symptoms of r = 0.79 in the first study and r = 0.69 in the second study. In addition, they found that the questions that measure lack of attention had a higher correlation between subjects and relatives in both studies: r = 0.76 and 0.70 respectively. The authors concluded that the adults may provide reliable information of ADHD symptoms in childhood, especially those symptoms of lack of attention[30]. The results of this present study suggest that, in addition to this symptom, other cognitive functions related with attention, such as organization capacity and memory, are reported reliability in adult subjects with ADHD.

Within the limitations of the present study, we find important correlation coefficients between the scores on the general psychopathology scales (SCL-90), Hamilton anxiety rating scale (HARS) and Young mania rating scale (YMRS). Although none of them reached a correlation coefficient equal to or greater than 0.70 considered as acceptable[31], we interpret this finding in the following way: the scale is capable of discriminating between a mood state or anxiety disorder and ADHD. However, the high comorbidity between ADHD and affective and anxiety disorders makes us stress that this instrument should not be used alone to make the definitive diagnosis of ADHD. On the other hand, the average years studied observed in this subject sample, considering the years of pre-school education, makes the results of this study and the viability of applying this scale are for subjects with a minimum educations of 13 years. We do not know if the instrument behaves similarly in subjects whose number of education years is less than 13 years.

No structure interview was applied in the present study to make a diagnosis of personality disorder, except for antisocial disorder of the personality included in the MINI Plus.

However, there are other personality disorders that may be confused with ADHD, for example borderline personality disorder. It is recommended that a structured interview be included in future investigations to make a formal diagnosis of personality disorder.

In conclusion: the self-report scale called «FASCT» in its self-reported and observer versions, designed to perform screening of adults with probable ADHD, is valid and reliable for this purpose.

NOTE FROM THE AUTHORS

The complete scale in both its versions may be requested at no cost by E-mail at the address: almeidal@prodigy.net.mx

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